



Mathematics

Subject Intent:

Deliver a 5 year progression curriculum providing sequenced building blocks of the national curriculum knowledge to all students, clearly outlining learning opportunities based on real life skills and applications, whilst consistently prioritising our learners' mental arithmetic strategies and emphasising vocabulary in order to:

Provide all learners with the knowledge they need for subsequent learning and provide deeper understanding of concepts; giving learners the skills they require to connect previous learning to new knowledge, freeing up working memory and preparing for future learning.

Deliver challenging lessons, which improve comprehension through context.

Provide frequent opportunities during lessons to interleave topics, linking new information to prior understanding, to increase retention and promote a deeper understanding of mathematical connections.

Develop our learners' knowledge, which is transferable to other subjects, future employability and lifelong skills.

Provide learners with frequent opportunities to develop skills they need to process unseen questions, work beyond what is covered in lessons and become proactive role models.

We aspire to develop learners with the skills required to analyse, evaluate and problem solve; inspiring creativity and giving them the independence to review approaches and solutions in all aspects of their lives. We continually strive to promote 'buy in' to maths by aligning the national curriculum with current and relevant contexts, whilst increasing our pupils' capacity for financial literacy, thus allowing them to make informed and effective decisions with their future financial resources.

Course Overview:

The Exam board and unit list for:
GCSE
A-Level

GCSE Mathematics Exam Board: Edexcel
GCSE Statistics Exam Board: Edexcel
A-Level Mathematics Exam Board: Edexcel
A-Level Further Mathematics Exam Board: Edexcel
A-Level Business Exam Board: Edexcel

Course Detail:

Year 7 Curriculum

At Key Stage 3, students are taught a range of topics from the five key areas of Maths; Number, Algebra, Ratio, Proportion and Rates of Change, Geometry and Measure and Statistics. These topics enable us to secure the key skills required to help support their preparation for GCSE Mathematics. The Year 7 Curriculum covers the following topics: Number Properties, Geometry and Measure, Introduction to Algebra, Fractions, Decimals and Percentages, Approximation, Algebra 2, Collecting and Interpreting Data, Sequences and Graphs, Proportion and Ratio and Scale.

Students will sit a formal unit test after each unit to enable teachers to provide detailed analysis of their strengths and areas for development. In addition, students will sit a termly assessment that covers all content taught throughout the year.

Year 8 Curriculum

At Key Stage 3, students are taught a range of topics from the five key areas of Maths; Number, Algebra, Ratio, Proportion and Rates of Change, Geometry and Measure and Statistics. These topics enable us to secure the key skills required to help support their preparation for GCSE Mathematics. The Year 8 Curriculum covers the following topics: Shape properties, Algebra 3, Probability, Triangles and Congruency, Circles, Pythagoras and Trigonometry, Solving Equations, Plotting and Sketching Graphs.

Students will sit a formal unit test after each unit to enable teachers to provide detailed analysis of their strengths and areas for development. In addition, students will sit a termly assessment that covers all content taught throughout the KS3.

Year 9 Curriculum

At Key Stage 3, students are taught a range of topics from the five key areas of Maths; Number, Algebra, Ratio, Proportion and Rates of Change, Geometry and Measure and Statistics. The content taught at Year 9 introduces key topics from GCSE that build the foundations of the GCSE curriculum, ensuring that they can progress to either the Foundation or Higher Tier, a decision that is not made until Year 11.

The Year 9 curriculum includes the following units: Basic calculations skills, Number theory, Algebraic expressions, Functions and sequences, Shapes and Solids, Construction and Loci, Further Algebra, Equations, Angles, Decimals, Units and Measurement, Percentages, Algebraic formulae, Perimeter, Area and Approximation.

Students will sit a formal unit test after each unit to enable teachers to provide detailed analysis of their strengths and areas for development. In addition, students will sit a termly assessment that covers all content taught throughout the KS3 and Year 9.

Year 10 Curriculum

At Key Stage 4, students are taught a range of topics from the five key areas of Maths; Number, Algebra, Ratio, Proportion and Rates of Change, Geometry and Measure and Statistics. The content taught in Year 10 builds on topics taught in Year 9 to further develop students' knowledge of the GCSE curriculum, ensuring that they can progress to either the Foundation or Higher Tier, a decision that is not made until Year 11.

The Year 10 curriculum includes the following topics: Straight Line Graphs, Other Graphs, Three-dimensional Shapes, Volume and Surface Area, Calculations with Ratio, Basic Probability, Further Probability, Powers and Roots, Standard Form, Surds, Plane Vector Geometry, Transformations, Congruent Triangles, Similarity, Pythagoras' Theorem and Trigonometry,

Students will sit a formal unit test after each unit to enable teachers to provide detailed analysis of their strengths and areas for development. In addition, students will sit a termly assessment that covers all content taught throughout the KS3 and Years 9 and 10.

Year 11 Curriculum

At Key Stage 4, students are taught a range of topics from the five key areas of Maths; Number, Algebra, Ratio, Proportion and Rates of Change, Geometry and Measure and Statistics. The content delivered in Year 11 completes the GCSE course and provides a detailed revision programme to ensure students are prepared effectively for their examinations with a focus on exam-style questions and techniques.

The Year 11 curriculum includes the following topics: Circle theorems, discrete growth and decay, Direct and inverse proportion, Collecting and displaying data, Analysing data, Interpreting graphs, Algebraic inequalities, Transformations of curves.

Students will sit a formal unit test after each unit to enable teachers to provide detailed analysis of their strengths and areas for development. Students will sit trial examinations which again provided detailed analysis of their strengths and areas for development allowing a clear programme of revision to be tailored to their needs.

Year 12 Curriculum

In A-level Mathematics, the students will study: Proof, Algebra and Functions, Coordinate Geometry, Sequences, Trigonometry, Exponentials and Logarithms, Differentiation, Integration, Vectors, Quantities and Units in Mechanics, Kinematics, Forces and Newton's Laws, Statistical Sampling, Data Presentation and Interpretation, Probability, Statistical Distributions and Statistical Hypothesis Testing.

In A-level Further Mathematics the students will study: Proof, Complex numbers, Matrices, Further Algebra and Functions, Further Calculus, Discrete Probability Distributions, Poisson and Binomial

Distributions, , Hypothesis Testing, , Chi Squared Tests, Probability Generating Functions, Quality of Tests, Algorithms and Graph Theory, and Algorithms on Graphs.

Students will be provided with clear feedback after each unit to provide detailed analysis of their strengths and areas for development. Students will sit trial examinations which again provided detailed analysis of their strengths and areas for development allowing a clear programme of revision to be tailored to their needs.

Year 13 Curriculum

In A-level Mathematics, the students will study: Further Algebra, Further Calculus, Further Trigonometry, Binomial Expansion, Further Kinematics, Further Probability, Statistics and Hypothesis Testing and Moments.

In A Level Further Mathematics the students will study: Further Vectors, Polar Coordinates, Hyperbolic Functions, Differential Equations, Central Limit Theorem, Geometric and Negative Binomial Distributions, Critical Path Analysis and Linear Programming.

Students will be provided with clear feedback after each unit to provide detailed analysis of their strengths and areas for development. Students will sit trial examinations which again provided detailed analysis of their strengths and areas for development allowing a clear programme of revision to be tailored to their needs.

Enrichment Opportunities

Extra-curricular Activities

KS4 Drop-in (Tuesday and Thursday after school) – students can complete homework or extra study with a Maths teacher on-hand to help where necessary!

KS5 Drop-in (Thursday after school in SSR7, 3.15-4.15pm) - students can receive extra help with independent study during this time.

UK maths challenge

Bletchley park code breakers day

Useful links

[HegartyMaths](#) For all revision and homelearning up to and including GCSE

[Corbettmaths – Videos, worksheets, 5-a-day and much more](#)- an excellent revision resource

[DrFrostMaths.com](#) extension activities for all year groups